



NOAA Teacher at Sea
Mary Anne Pella-Donnelly
Onboard NOAA Ship *David Starr Jordan*
September 8 – 22, 2008

NOAA Teacher at Sea: Mary Anne Pella-Donnelly

NOAA Ship: *David Starr Jordan*

Mission: LUTH Survey (Leatherback Use of Temperate Habitats)

Date: September 17, 2008

Geographical area of cruise: Pacific Ocean –San Francisco to San Diego

Weather Data from the Bridge

Latitude: 3614.8661 W

Longitude: 12402.7415 N

Wind Direction: 190 (compass reading) SW

Wind Speed: 2.1 knots

Surface Temperature: 15.230

	Lat	Long	Station	Date	Time (GMT)	SST (deg C)	Salinity	Weight (kg)	Diameter (mm)	Species	
1	46	37.578	-122.645	P8	9/15/2008	16:48:06	14.37	33.589	4.90	470	Cfus
2	46	37.578	-122.645	P8	9/15/2008	16:48:06	14.37	33.589	5.50	475	Cfus
3	46	37.578	-122.645	P8	9/15/2008	16:48:06	14.37	33.589	3.60	410	Cfus
4	46	37.578	-122.645	P8	9/15/2008	16:48:06	14.37	33.589	5.75	470	Cfus
5	46	37.578	-122.645	P8	9/15/2008	16:48:06	14.37	33.589	2.60	380	Cfus
6	46	37.578	-122.645	P8	9/15/2008	16:48:06	14.37	33.589	3.50	405	Cfus
7	46	37.578	-122.645	P8	9/15/2008	16:48:06	14.37	33.589	2.75	365	Cfus
8	47	37.47226	-122.502	P7	9/15/2008	18:39:50	15.229	33.63	3.25	385	Cfus
9	47	37.47226	-122.502	P7	9/15/2008	18:39:50	15.229	33.63	2.25	350	Cfus
10	47	37.47226	-122.502	P7	9/15/2008	18:39:50	15.229	33.63	1.75	335	Cfus
11	47	37.47226	-122.502	P7	9/15/2008	18:39:50	15.229	33.63	4.00	420	Cfus
12	47	37.47226	-122.502	P7	9/15/2008	18:39:50	15.229	33.63	1.95	320	Cfus
13	47	37.47226	-122.502	P7	9/15/2008	18:39:50	15.229	33.63	2.25	390	Cfus
14	48	37.42253	-122.624	P6	9/15/2008	20:20:32	14.82	33.529	2.15	350	Cfus
15	48	37.42253	-122.624	P6	9/15/2008	20:20:32	14.82	33.529	1.55	305	Cfus
16	48	37.42253	-122.624	P6	9/15/2008	20:20:32	14.82	33.529	4.15	405	Cfus
17	48	37.42253	-122.624	P6	9/15/2008	20:20:32	14.82	33.529	3.15	385	Cfus
18	48	37.42253	-122.624	P6	9/15/2008	20:20:32	14.82	33.529	1.4	345	Cfus
19	48	37.42253	-122.624	P6	9/15/2008	20:20:32	14.82	33.529	2.25	360	Cfus
20	48	37.42253	-122.624	P6	9/15/2008	20:20:32	14.82	33.529	3.85	400	Cfus
21	48	37.42253	-122.624	P6	9/15/2008	20:20:32	14.82	33.529	1	275	Cfus

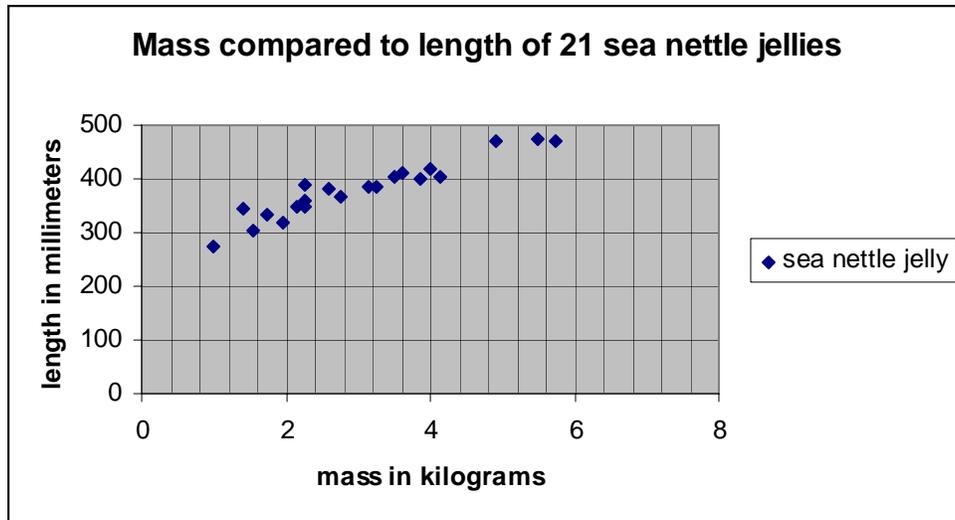
Science and Technology Log

Above is a spreadsheet of some of the *Chrysaora fuscescens* data that was collected on September 15. The first trawl was at 4:48 pm, the second at 6:39 pm and the third at 8:20 pm. A fourth trawl was deployed at 10:49 pm.

A total of 204 jellies were sorted and measured. Of these, the first 7 jellies measured from trawl numbers' 46, 47 and 48 are recorded above. All of the species in this data set are *Chrysaora fuscescens*. Using the spreadsheet, create a graph that compares mass to length for these 21 animals. When you believe you have completed this, answer the questions listed below.

Questions:

1. Is your graph complete?
 - a. Check to see if you have included; all units-mass in kilograms, length in millimeters; a legend that includes the code of the points; title for each axis (length of jelly in millimeters, mass of jelly in kilograms); title for graph
 - b. Did you make a scatter plot, bar graph or line graph?
 - i. The best choice would be a scatter plot, this may give an indication of patterns in the relationship between length and mass
2. Can you see any pattern? Is there a relationship between mass and length? This would be indicated by a linear pattern in the points?
3. Do there appear to be any points that do not fit a general pattern? What might cause these points that do not fit the norm to exist?
4. Compare your graph with the one shown below, generated by the computer.



These *Chrysaora fuscescens* were caught in “jelly lane”, in the waters near Pacifica, CA that are known to have large jelly populations. It is also an area known for leatherback sightings because of this food source. A great deal of information is known about the oceanographic conditions in this near-shore habitat. The reason the LUTH survey is crisscrossing off the continental shelf, is that much less is known about deeper offshore waters as a potential food source for migrating leatherbacks. The routes they travel on must have some food available, so we are working to

find out where that is, and gain information about relationships to oceanographic variables so that researchers will be able to eventually estimate where that food is using satellite images that will be translated into jellyfish habitat.

Personal Log

There was quite a bit of excitement today up on the flying bridge.

Although we were traveling out beyond the continental shelf, we moved over a front of water that had an abundance of moon jellies.

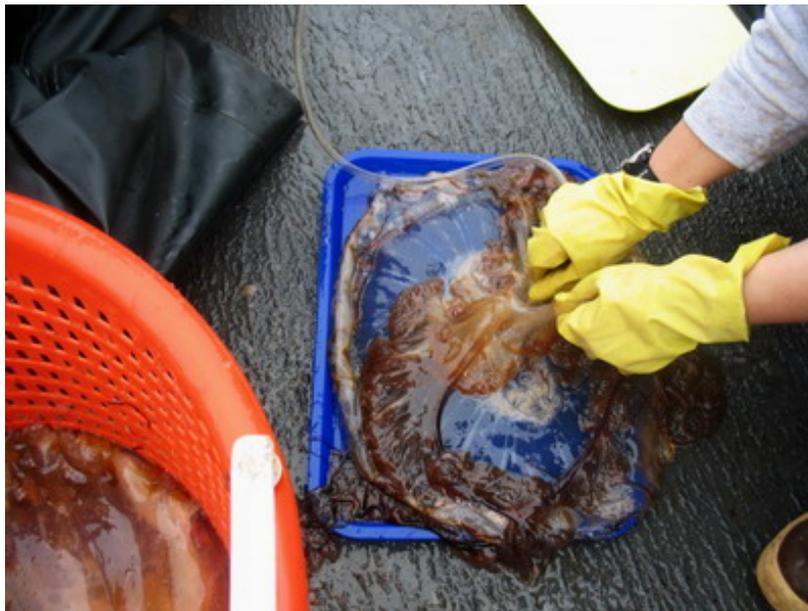
It was unexpected and the scientific team became very excited. New plans were made based on this observation and a decision was made to cross back across the front and collect temperature data within the water column every 10 minutes.

Quantitative observations were made of all jellies seen port and starboard and a net trawl was deployed at one point along the zone of interest.

It was quite a day. We also spotted blue sharks, ocean sunfish, and a swordfish jumping. It was a good day.



Chico Gomez and Scott Benson sorting jellies.



Extracting stomach contents from large *C. fuscescens*

Animals Seen Today

- Sooty shearwater *Puffinus griseus*
- Sea nettle jellies *Chrysaora fuscescens*
- Moon jellies *Aurelia aurita*
- Northern Fur seal *Callorhinus ursinus*
- Elephant seal *Mirounga angustirostris*
- Swordfish *Xiphias gladius*
- Blue shark *Prionace glauca*
- Buller's shearwater *Puffinus bulleri*
- Ocean sunfish *Mola mola*
- Rhinoceros auklet *Cererhinca monocerata*
- Black-footed Albatross *Phoebastria nigripes*

Questions of the Day

1. What might be possible reasons the scientific team was excited at finding jellyfish out beyond the continental shelf?
2. The weather has been very calm and mostly overcast. One of the officers told me he would much rather have those conditions, than windy and sunny. What effect might wind have on a sturdy, ocean-going ship?



Ocean sunfish seen from flying bridge.



Sunset seen from flying bridge, the first sunset we've seen on this leg.